

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims** (deleted text being struck through and added text being underlined):

1. (Previously Presented) A method of applying polyacrylamide (PAM) for stabilizing soil particles of a land area from erosive movement about the land area, the method comprising:  
establishing a uniform mixture ratio for a mixture of PAM and water to be applied to a land area;  
calculating a total application rate for applying the mixture to the land area;  
mixing PAM with water according to the uniform mixture ratio to form a mixture for application to the land area;  
applying the mixture to a top surface of soil of the land area; and  
terminating the application of the mixture when PAM reaches sufficient depth penetration below a top surface of the soil.
2. (Original) The method of claim 1 wherein the establishing step includes mixing PAM and water in a ratio of about 1 part PAM to between about 500 and about 5000 parts water by volume.
3. (Original) The method of claim 1 wherein the establishing step includes mixing PAM and water in a ratio of 1 part PAM to about 1000 parts water by volume.
4. (Original) The method of claim 1 additionally comprising the step of determining a number of times that the mixture of the uniform mixture ratio needs to be applied to the land area to achieve the calculated total application rate of the PAM.

5. (Original) The method of claim 1 wherein the applying step comprises making a series of applications of the mixture to the surface for a number of times until the application rate for the soil of the land area is achieved.

6. (Original) The method of claim 1 wherein the applying step includes misting a portion of the total application rate of the mixture onto the surface of the land area to produce a tack coat for initially stabilizing topmost soil particles on the top surface of the land area against soil particle movement caused by subsequent mixture applications.

7. (Original) The method of claim 1 wherein the applying step includes continuing to apply the mixture to the surface of the soil until the soil of the land area becomes saturated and stopping the application of the mixture top surface becomes saturated.

8. (Previously Presented) The method of claim 7 additionally comprising detecting saturation of the soil when the mixture accumulates on the surface rather than being absorbed into the ground and the mixture on the top surface reflects ambient light.

9. (Original) The method of claim 8 wherein the applying step includes waiting for a time period after detection of saturation such that the mixture is able to penetrate the ground below the surface, wherein the time period comprises the time required for any puddles of the mixture on the top surface of the soil to be absorbed into the soil below the top surface.

10. (Original) The method of claim 9 wherein the waiting step is conducted for a time period that is less than the time required for the top surface of the soil to dry.

11. (Original) The method of claim 1 wherein the applying step includes the step of directing a spray of the mixture onto the top surface of the soil of the land area from at least four directions, each of the directions being oriented at about 90 degrees to at least two of the other directions.

12. (Original) The method of claim 11 wherein the applying step includes the step of directing a spray of the mixture at a substantially perpendicular angle downward onto the top surface of the soil of the land area, wherein the direction of the substantially perpendicular spray varies less than about 15 degrees measured from an axis perpendicular to the surface of the soil.

13. (Original) The method of claim 1 additionally comprising testing the extent of penetration of the PAM below the top surface of the soil of the land area.

14. (Previously Presented) The method of claim 1 wherein the testing step includes removing a core sample of the soil from the land area.

15. (Previously Presented) The method of claim 1 additionally comprising the step of comparing the depth penetration of the PAM below the top surface of the soil of the land area to a set of minimum depth penetration values based upon the general slope of the land area to determine the minimum depth penetration needed for the land area being treated before terminating application of the mixture to the land area.

16. (Original) The method of claim 15 additionally comprising exceeding the total application rate calculated if the sufficient minimum depth penetration is not achieved through application of mixture to the soil at the total application rate.

17. (Currently Amended) A method of applying polyacrylamide (PAM) for stabilizing soil particles of a land area from erosive movement about the land area, the method comprising;  
~~establishing a uniform mixture ratio for a mixture of PAM and water to be applied to a land area;~~  
calculating a total application rate for applying ~~[[the]]~~ a mixture of PAM and water to the land area based upon a uniform mixture ratio;  
mixing PAM with water according to the uniform mixture ratio to form a mixture for application to the land area; and  
applying the mixture to a top surface of soil of the land area, the mixture being applied to the top surface of the land area as a mist so as to produce a tack coat of the PAM on the top surface of the soil to initially stabilize topmost soil particles on the top surface of the land area against soil particle movement caused by any subsequent mixture applications;  
wherein the applying step comprises making a series of applications of the mixture to the soil to achieve the total application rate for the soil of the land area, and temporarily terminating application of the mixture to the soil between applications of the series of application when saturation of the soil by the mixture is detected.

18. (Original) The method of claim 17 additionally comprising the step of determining a number of times that the mixture of the uniform mixture ratio needs to be applied to the land area to achieve the calculated total application rate of the PAM.

19. (Cancelled)

20. (Original) The method of claim 17 wherein the applying step includes continuing to apply the mixture to the surface of the soil until the soil of the land area becomes saturated and stopping the application of the mixture top surface becomes saturated.

22. (Previously Presented) The method of claim 21 wherein the temporarily terminating application of the applying step includes waiting for a time period after detection of saturation such that the mixture is able to penetrate the ground below the surface, wherein the time period comprises the time required for any puddles of the mixture on the top surface of the soil to be absorbed into the soil below the top surface.

23. (Original) The method of claim 22 wherein the waiting step is conducted for a time period that is less than the time required for the top surface of the soil to dry.

24. (Original) The method of claim 17 wherein the applying step includes the step of directing a spray of the mixture onto the top surface of the soil of the land area from at least four directions, each of the directions being oriented at about 90 degrees to at least two of the other directions.

25. (Original) The method of claim 17 wherein the applying step includes the step of directing a spray of the mixture at a substantially perpendicular angle downward onto the top surface of the soil of the land area, wherein the direction of the substantially perpendicular spray varies less than about 15 degrees measured from an axis perpendicular to the surface of the soil.

26. (Original) The method of claim 17 additionally comprising testing the extent of penetration of the PAM below the top surface of the soil of the land area.

27. (Previously Presented) The method of claim 17 wherein the testing step includes removing a core sample of the soil from the land area.

28. (Previously Presented) The method of claim 17 additionally comprising the step of terminating the application of the mixture when PAM penetrates below a top surface of the soil.

29. (Previously Presented) The method of claim 28 additionally comprising comparing the depth penetration of the PAM below the top surface of the soil of the land area to a set of minimum depth penetration values based upon the general slope of the land area to determine the minimum depth penetration needed for the land area being treated before terminating application of the mixture to the land area.

30. (Currently Amended) The method of claim 17 additionally comprising establishing the uniform mixture ratio for a mixture of PAM and water to be applied to a land area;

wherein the establishing step includes mixing PAM and water in a ratio of about 1 part PAM to between about 500 and about 5000 parts water by volume.

31. (Original) The method of claim 17 additionally comprising the step of considering the relative compaction of the soil of the land area, and increasing a number of times of applications of the mixture if the top surface of the soil of the land area has a compacted crust for loosening the compaction of the soil to enhance the penetration of subsequent applications of the mixture into the soil.

32. through 38. (Cancelled)

39. (Previously Presented) A method of applying polyacrylamide (PAM) for stabilizing soil particles of a land area from erosive movement about the land area, the method comprising;  
mixing PAM with water to form a mixture for application to the land area;  
applying the mixture to a top surface of soil of the land area until the soil of the land area becomes saturated, and stopping the application of the mixture when the top surface becomes saturated and the mixture accumulates on the surface rather than being absorbed into the ground and the mixture on the top surface reflects ambient light; and  
terminating the application of the mixture when PAM penetrates below a top surface of the soil.

40. (Previously Presented) The method of claim 39 additionally comprising the step of establishing a uniform mixture ratio for a mixture of PAM and water to be applied to a land area, and wherein the mixture formed by the mixing step has a ratio of PAM and water corresponding to the uniform mixture ratio.

41. (Previously Presented) The method of claim 40 additionally comprising the step of calculating a total application rate for applying the mixture to the land area, and additionally comprising the step of determining a number of times that the mixture of the uniform mixture ratio needs to be applied to the land area to achieve the calculated total application rate of the PAM.

42. (Previously Presented) The method of claim 39 additionally comprising the step of calculating a total application rate for applying the mixture to the land area, and wherein the applying step comprises making a series of applications of the mixture to the surface for a number of times until the application rate for the soil of the land area is achieved.

43. (Cancelled)



44. (Previously Presented) The method of claim 1 wherein the establishing step includes mixing PAM and water in a ratio of about 1 part PAM to between about 500 and about 5000 parts water by volume;

additionally comprising the step of determining a number of times that the mixture of the uniform mixture ratio needs to be applied to the land area to achieve the calculated total application rate of the PAM;

wherein the applying step comprises making a series of applications of the mixture to the surface for a number of times until the application rate for the soil of the land area is achieved;

wherein the applying step includes misting a portion of the total application rate of the mixture onto the surface of the land area to produce a tack coat for initially stabilizing topmost soil particles on the top surface of the land area against soil particle movement caused by subsequent mixture applications;

wherein the applying step includes continuing to apply the mixture to the surface of the soil until the soil of the land area becomes saturated and stopping the application of the mixture top surface becomes saturated;

additionally comprising detecting saturation of the soil when the mixture accumulates on the surface rather than being absorbed into the ground and the mixture on the top surface reflects ambient light;

wherein the applying step includes waiting for a time period after detection of saturation such that the mixture is able to penetrate the ground below the surface, wherein the time period comprises the time required for any puddles of the mixture on the top surface of the soil to be absorbed into the soil below the top surface;

wherein the waiting step is conducted for a time period that is less than the time required for the top surface of the soil to dry;

wherein the applying step includes the step of directing a spray of the mixture onto the top surface of the soil of the land area from at least four directions, each of the directions being oriented at about 90 degrees to at



least two of the other directions;

wherein the applying step includes the step of directing a spray of the mixture at a substantially perpendicular angle downward onto the top surface of the soil of the land area;

additionally comprising testing the extent of penetration of the PAM below the top surface of the soil of the land area;

wherein the testing step includes removing a core sample of the soil from the land area;

comparing the depth penetration of the PAM below the top surface of the soil of the land area to a set of minimum depth penetration values based upon the general slope of the land area to determine the minimum depth penetration needed for the land area being treated before terminating application of the mixture to the land area; and

exceeding the total application rate calculated if the sufficient minimum depth penetration is not achieved through application of mixture to the soil at the total application rate.

45. (Cancelled)

46. (Previously Presented) The method of claim 17 additionally comprising the step of determining a number of times that the mixture of the uniform mixture ratio needs to be applied to the land area to achieve the calculated total application rate of the PAM;

wherein the applying step comprises making a series of applications of the mixture to the soil according to the number of times determined to achieve the total application rate for the soil of the land area;

wherein the applying step includes continuing to apply the mixture to the surface of the soil until the soil of the land area becomes saturated and stopping the application of the mixture top surface becomes saturated;

additionally comprising detecting saturation of the soil when the mixture accumulates on the surface rather than being absorbed into the ground and the mixture on the top surface reflects ambient light;

wherein the applying step includes the step of directing a spray of the mixture onto the top surface of the soil of the land area from at least four directions;

wherein the applying step includes waiting for a time period after detection of saturation such that the mixture is able to penetrate the ground below the surface, wherein the time period comprises the time required for any puddles of the mixture on the top surface of the soil to be absorbed into the soil below the top surface;

wherein the waiting step is conducted for a time period that is less than the time required for the top surface of the soil to dry;

additionally comprising testing the extent of penetration of the PAM below the top surface of the soil of the land area;

wherein the testing step includes removing a core sample of the soil from the land area;

additionally comprising the step of terminating the application of the mixture when PAM penetrates below a top surface of the soil;

additionally comprising comparing the depth penetration of the PAM below the top surface of the soil of the land area to a set of minimum depth penetration values based upon the general slope of the land area to determine the minimum depth penetration needed for the land area being treated before terminating application of the mixture to the land area; and

additionally comprising the step of considering the relative compaction of the soil of the land area, and increasing a number of times of applications of the mixture if the top surface of the soil of the land area has a compacted crust for loosening the compaction of the soil to enhance the penetration of subsequent applications of the mixture into the soil.

47. (Currently Amended) The method of claim 46 additionally comprising establishing the uniform mixture ratio for a mixture of PAM and water to be applied to a land area;

wherein the establishing step includes mixing PAM and water in a ratio of about 1 part PAM to between about 500 and about 5000 parts water by volume.

48. (Previously Presented) The method of claim 1 additionally comprising determining the degree of stability of the soil of the land area to be treated including testing the vulnerability to erosion of the soil of the land area to be treated.

49. (Previously Presented) The method of claim 48 wherein the determining step includes removing a sample of the soil from the land area to be treated, pouring a first mixture of PAM on at least a first portion of the soil sample, and observing the soil sample for any movement of soil in the soil sample caused by the mixture.

50. (Previously Presented) The method of claim 49 additionally comprising positioning the soil sample so that an upper surface of the sample has a slope, wherein the pouring of the first mixture on the soil sample is performed near an uppermost end of the slope of the upper surface of the soil sample.

51. (Previously Presented) The method of claim 50 additionally comprising placing the soil sample in an elongated first tray, collecting in a first container the portion of the first liquid that drains from a lowermost end of the first tray and any soil particles carried by the portion of the first mixture, and categorizing the appearance of the first mixture and soil particles in the first container based upon a predetermined chart rating the erodability of the soil,

wherein when the contents of the first container is clear, the soil is categorized as not erodable,

wherein when the contents of the first container is nearly clear, the soil is categorized as slightly erodable,

wherein when the contents of the first container is cloudy, the soil is categorized as moderately erodable,

wherein when contents of the first container is very silty, the soil is categorized as easily erodable,

wherein when contents of the first container is muddy in appearance, the soil is categorized as very erodable, and

wherein when contents of the first container is nearly a slurry, the soil is categorized as difficult to control.

52. (Previously Presented) The method of claim 49 wherein the slope in the upper surface of the sample is approximately 3 to 1.

53. (Previously Presented) The method of claim 49 wherein the first mixture of PAM includes water.

54. (Previously Presented) The method of claim 49 wherein the determining step includes:

providing a second tray;

removing a sample of the soil from the land area to be treated and placing at least a second portion of the soil sample in the second tray;

tilting the second tray to produce a slope in an upper surface of the second portion of the sample in the second tray that is substantially equal to the slope of the upper surface of the first portion of the sample in the first tray;

pouring a second liquid on the soil sample in the second tray near an uppermost end of the second tray, the second liquid comprising water without PAM;

collecting in a second container the portion of the second liquid that drains from a lowermost end of the second tray and any soil particles carried by the portion of the second liquid, and

comparing movement of soil particles from the second tray into the second container to movement of soil particles from the first tray into the first container.

55. (Previously Presented) A method of applying polyacrylamide (PAM) for stabilizing soil particles of a land area from erosive movement about the land area, the method comprising:

mixing PAM with water to form a mixture for application to the land area; applying the mixture to a top surface of soil of the land area by misting a

first portion of a total application rate of PAM onto the surface of the land area to produce a tack coat for initially stabilizing topmost soil particles on the top surface of the land area against soil particle movement caused by subsequent PAM applications;

terminating the application of the mixture to the top surface of the soil after

the misting of the first portion of the total application rate; and applying a second portion of the total application rate of PAM in a granular form of PAM to the soil on which the mixture was misted.

56. (Previously Presented) The method of claim 55 wherein the step of terminating the application of the mixture to the top surface of the soil is continued until substantially any accumulations of the mixture on the top surface of the soil have been absorbed into the soil.

57. (Previously Presented) The method of claim 56 wherein the step of terminating the application of the mixture to the top surface of the soil is discontinued before the mixture dries on the top surface of the soil.

58. (Previously Presented) The method of claim 55 additionally comprising a step of resuming application of the mixture to the top surface of the soil, after the step of applying the second portion of PAM in a granular form is completed, is performed.

59. (Previously Presented) The method of claim 1 further comprising:  
after an initial application of the PAM and water mixture to the surface of the soil, applying a granular form of PAM to the soil.

60. (Previously Presented) A method of applying polyacrylamide (PAM) for stabilizing soil particles of a land area from erosive movement about the land area, the method comprising:  
calculating an application rate for applying a mixture of PAM and water to the soil particles of the land area based upon characteristics of the soil particles of the land area;  
mixing PAM with water according to a mixture ratio to form a mixture for application to the land area;  
determining a number of applications of the mixture to the land area needed to substantially achieve the application rate for the land area; and  
applying the mixture to a top surface of soil of the land area in a series of at least two applications of the mixture to the surface for the number of applications until the application rate for the soil of the land area is

substantially achieved.

61. (Previously Presented) A method of applying polyacrylamide (PAM) for stabilizing soil particles of a land area from erosive movement about the land area, the method comprising:  
initially applying a mixture of PAM and water to a top surface of soil of the land area;  
terminating the initial application of the mixture; and  
making, after a time period passes after terminating the application, at least one additional application of the mixture to the top surface of the soil; wherein the initial application includes misting a portion of the total application rate of the mixture onto the surface of the land area.

62. (Previously Presented) The method of claim 61 wherein terminating the initial application is performed when PAM reaches sufficient depth penetration below the top surface of the soil.

63. (Cancelled)

64. (Cancelled)

65. (Previously Presented) A method of stabilizing soil particles of a land area from erosive movement until turf is established on the land area by applying polyacrylamide (PAM) to the soil particles of the land area, the method comprising:  
initially applying a mixture of PAM and water to a top surface of soil of the land area;  
terminating the initial application of the mixture;  
making, after a time period passes after terminating the application, at least one additional application of the mixture to the top surface of the soil; wherein the initial application includes misting a portion of the total application rate of the mixture onto the surface of the land area.



66. (Previously Presented) The method of claim 39 additionally comprising the step of performing a second application of the mixture to the top surface of the soil after the step of stopping the application, the step of performing the second application occurring after a time period needed for the accumulation of the mixture on the surface to be absorbed into the soil.

67. (Previously Presented) The method of claim 17 wherein the mist application of the mixture is produced by directing a spray of the mixture into the air above the top surface of the soil of the land area; and

wherein further applications of the series of applications are produced by directing a spray of the mixture downwardly onto the top surface

68. (Previously Presented) The method of claim 17 wherein the mist of the mixture is applied to the top surface of the soil of an entirety of the land area.

69. (Previously Presented) The method of claim 65 additionally comprising, prior to the initial application of the mixture of PAM and water, obtaining a sample of the soil from the land area to be treated and applying a mixture of PAM and water to the soil sample at at least two different application rates at two different times, and observing any movement of the soil of the sample during the different application times.